REMARKS/ARGUMENTS

Claims 1-20 stand rejected in the outstanding Official Action. Claims 2, 4, 5, 7-13 and 18-20 have been amended and therefore claims 1-20 remain in this application.

The Examiner's indication that the originally submitted drawings are accepted is very much appreciated. Furthermore, the acknowledgment of applicants' claim for priority and receipt of the certified copy of the priority document is appreciated. Finally, the consideration of the prior art submitted with applicants' Information Disclosure is appreciated.

The Patent Office objects to the Abstract and the arrangement of the specification. It is also appreciated that the Examiner has brought the Abstract and the arrangement of the specification to the applicant's attention. It is noted that the objection to the Abstract and the arrangement appear to be an indication that the originally filed specification and drawings (transmitted from WIPO) do not meet the formality requirements of the U.S. Patent and Trademark Office. The Patent Office is reminded that the U.S. Patent and Trademark Office must comply with all articles of the Patent Cooperation Treaty (PCT) including Article 27. It has been held that:

"if the rule and interpretation of the PTO conflicts with the PCT, it runs afoul of Article 27 of the PCT which provides in part:

(1) No national law shall require compliance with requirements relating to the form or contents of the international application different from or additional to those which are provided for in this Treaty and the Regulations." Caterpillar Tractor v. Commissioner, 231 USPQ 590, 591 (EDVA 1986).

The Patent Office has referenced this decision in the Official Gazette dated September 9, 1986 (1070 TMOG 5).

As a consequence, the Patent Office (including the Chief Draftsman's Office) may not require Abstract changes or specification format changes as long as the originally submitted documents comply with the PCT requirements. Inasmuch as this specification was forwarded for WIPO, by definition, it meets the PCT requirements (it is not forwarded until it meets PCT requirements.). Therefore, the objection to the Abstract and the specification is respectfully traversed and reconsideration thereof is respectfully requested.

Notwithstanding the above, applicant has included a retyped Abstract on a separate sheet, and has added headings and subheadings to the specification.

The specification is objected to as allegedly failing to comply with 37 CFR §1.84(p)(5). Applicants would note that drawing reference number "14" is disclosed in applicants' specification at page 17, line 29, and refers to the "programmable logic module 14." Additionally, drawing reference number 149 is disclosed on page 25, line 5 and page 27, line 6, as a "buffers 149." Therefore, these two items are described in applicants' specification and any further objection thereto is respectfully traversed.

The Examiner correctly notes that items 16, 17, 21 and 22 are not described in the specification. Reference numbers 16 and 17 have been dropped from applicants' Figure 1 in the attached proposed drawing correction, thereby obviating the requirement of discussion in the specification. Applicants' specification has been amended on page 18,

adding a reference to items 21 and 22, thereby obviating any further rejection. Upon receipt of the Examiner's approval of the proposed drawing correction and a Notice of Allowance in this application, applicants will submit corrected formal drawings reflecting the proposed correction.

The specification is objected to with respect to the informalities relating to Figures 13a, 13b and 17. Applicants have corrected page 16 to include a full recitation of Figures 13, 13a and 13b and has corrected the reference to Figure 15 as being the required reference to Figure 17 which shows waveforms for modification of Figures 14-16.

Accordingly, in view of the above addition of headings and subheadings, the added abstract, the modification of the specification and the proposed drawing corrections, the application is believed to meet all requirements of the U.S. Patent and Trademark Office and notice to that effect is respectfully solicited.

Claims 6-12 and 18-20 stand objected to under 37 CFR §1.75(c) as being in improper form. Claims 2, 4, 5, 7-13 and 18-20 have been amended to obviate any dependency of a multiple dependent claim upon another multiple dependent claim. Claim 13 is objected to and the Examiner's proposed amendments to claim 13 have been adopted in the above amendment. Accordingly, the objections to claims 6-13 and 18-20 have been obviated in this amendment.

Claims 2, 4, 5, 12 and 13 have been rejected under 35 USC §112 (second paragraph) as being indefinite. Specifically, the Examiner objects to claim 2 as lacking

antecedent basis, and the Examiner's suggested correction has been adopted in the above amendment.

The Examiner also indicates that claims 4 and 5 are unclear with respect to the phrase "the voltage on the spaced electrode and the voltage applied to each element of the array are all shifted substantially simultaneously . . . ." What is meant by the phrase is simply that the voltage on the spaced electrode is changed at the same time that the voltage of each pixel is also changed by the same amount. Applicants have revised the wording of claims 4 and 5 to indicate that it is the voltages on the spaced electrode and on each element of the array which are all shifted substantially simultaneously. This revised wording is believed to more clearly specify the operation set out in claims 4 and 5.

The Examiner suggests that claim 12 is unclear as to what is meant by "dc balancing." Applicants indicate that this term "dc balancing" is a well known term of art in the field of liquid crystal displays. Moreover, it is discussed in applicants' specification, beginning on page 2, line 17 and continuing to page 3, line 3. It is well known that it is desirable to maintain the average dc balance at a pixel to be zero potential so as to avoid biasing the liquid crystal material at that pixel in one twist direction or the other. Thus, "dc balancing" as referred to in claim 12 is the well-known term relating to the maintenance of an average dc voltage of zero at various pixels. Accordingly, applicants do not believe any further amendment of the specification or claims is needed in this regard.

The Examiner also suggests that claim 13 contains a mixture of device and method limitations. Claim 13 recites in means-plus-function form the "control means" and then specifies the functions provided by that control means. While the functions are method limitations, the recitation of a "means" plus the function performed by that means (even if in method step form) meets the requirements of the sixth paragraph of 35 USC §112. Accordingly, applicants' claim 13 recitation in "means-plus-function" format is believed to meet the statutory requirements of claim language presentation and any further objection thereto is respectfully traversed.

In view of the above, it is submitted that the rejections of claims 2, 4, 5, 12 and 13 under 35 USC §112 have been obviated and any further rejection thereunder is respectfully traversed.

Claims 1-5 and 13-17 stand rejected as obvious over Crossland '104 (U.S. Patent 5,774,104) in view of Crossland '266 (U.S. patent 5,751,266). Firstly, it will be noted that the William Alden Crossland who is the inventor noted in Crossland '104 and Crossland '266 is the same Crossland who is a co-inventor of the present invention.

Additionally, it is noted that the present invention comprises a method of driving an electro-optic modulator with an array of elements which starts with a "optically blank or uniform array." There is no teaching in either Crossland '104 or Crossland '266 that the starting point is an "optically blank or uniform array."

Crossland '104 merely displays an image on an array and then to obtain dc balance writes the reverse of the image on the display. There is no disclosure that he starts with a blank or uniform array.

Crossland '266 relates to a form of high speed addressing in which only those pixels which change between frames of a display are addressed. While this permits very fast addressing of pixels, it does require processing circuitry to compare successive frames in order to identify those which have changed. There is no suggestion in Crossland '266 which would indicate that one would then apply the image reversal step of Crossland '104, because that would slow down the overall addressing.

Neither Crossland '104 nor Crossland '266 suggest starting with a blank image and then addressing only those pixels needed to change state and providing a reversal of those addressed pixels to provide automatic dc balance. Such automatic dc balance eliminates the need for any blanking steps, thereby resulting in faster addressing. Also, since the image reversal step is a simple rewriting of previously written pixels, there is no required computationally intensive frame comparison or related processing circuitry.

As a result, because neither Crossland '104 nor Crossland '266 relate to starting with a blank image with an optically blank or uniform array and then selectively erasing selected elements which have been changed, there can be no disclosure of applicants' claimed inventive method.

Moreover, the present invention would not be obvious in view of the two Crossland patents to one of ordinary skill in the art. Clearly, the invention was not

obvious to the inventor of Crossland '104 and Crossland '266, who by definition is a person of greater than ordinary skill in the art. If it wasn't obvious to Professor Crossland, it certainly would not have been obvious to one of ordinary skill in the art. Accordingly, any further rejection of claims 1-5 and 13-17 under 35 USC §103 is respectfully traversed.

Having responded to all objections and rejections set forth in the outstanding Official Action, it is submitted that claims 1-20 are in condition for allowance and notice to that effect is respectfully solicited. In the event the Examiner is of the opinion that a brief telephone or personal interview will facilitate allowance of one or more of the above claims, she is respectfully requested to contact applicant's undersigned representative.

Respectfully submitted,

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Attachments:
Abstract on separate sheet
Replacement Sheet Fig. 1